

Kanalku, Hasselborg, and Sitkoh, Subsistence Sockeye Salmon Stock Assessment

Abstract: Portions of the spawning sockeye salmon populations in Kanalku Lake and Sitkoh Lake were estimated through observer counts and mark-recapture studies; age, length, and sex composition of these populations were estimated using standard measurements and scale sampling and analysis. Sockeye salmon fry populations in each lake were estimated using hydroacoustic and trawl sampling. Baseline information was collected on the physical characteristics and productivity of lake rearing habitat in each system using standard limnological sampling procedures. At Hasselborg River, only visual surveys and a small amount of age, length, and sex sampling were successfully carried out; the physical environment in the river mouth made other types of sampling difficult. Confirming community and agency concerns, Kanalku Lake appeared to have very low spawning escapement, and low sockeye salmon fry density. Kanalku Lake has a relatively deep euphotic zone compared to other organically stained lakes in Southeast Alaska, and the zooplankton density and biomass were low. Sitkoh Lake appeared to have a healthy escapement, with a mark-recapture estimate of sockeye salmon within a selected index area of 8,788 (95% CI 8,025–10,485). Sitkoh Lake had moderate sockeye salmon fry densities compared to other sockeye salmon rearing lakes in Southeast Alaska. It also appears to have healthy zooplankton populations with sufficient numbers of cladocerans *Daphnia* spp. and *Bosmina* spp., the preferred prey items, to support the sockeye salmon fry population. Visual inspection of adult sockeye salmon in the lower Hasselborg River indicated that the spawning population there is healthy, but the river conditions prevented a successful mark-recapture study. Good baseline information was obtained from the sampling conducted in 2001, but additional years of data will be needed to validate these results, document trends in populations and lake productivity over time, and set sustainable escapement goal ranges for each system.

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